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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,221	12/13/2001	Nathan S. Lewis	1034345-000091	9894

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BUCHANAN, INGERSOLL & ROONEY LLP
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EXAMINER

NOGUEROLA, ALEXANDER STEPHAN

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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05/12/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary

Application No.

10/017,221

Applicant(s)

LEWIS ET AL.

Examiner

ALEX NOGUEROLA

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/26/2007 (RCE).
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment of October 16, 2007 does not render the application allowable.

Response to Arguments

2. Applicant's arguments filed October 16, 2007 ("Amendment") have been fully considered but they are not persuasive. However, because none of the pending claims refer to substantial biomolecules or biochemicals, such as nucleic acids, proteins, enzymes, etc., and the independent claims only refer to simple analytes, such as alkanes, ketones, and carbonyls, for example, the Examiner has decided to withdraw the scope of enablement rejections.

Status of the Rejections pending since the Office action of February 27, 2007

3. All previous rejections are withdrawn.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 9-12 and 15-17 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hoffheins et al. US 5,654,497 ("Hoffheins"). See the abstract; Figure 14; col. 03: 58 – col. 06:14; and claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. ("Selection of Adsorbates for Chemical Sensor Arrays by Pattern Recognition," Anal. Chem. 1986, 58, 149-153) ("Carey").

Carey meets all of the limitations of claims 16 and 17 except for specifically stating that the plurality of signal profiles does not include an analyte of interest or that the computer is operative to compare the sensor array signal profile to the plurality of previously obtained signal profiles from the plurality of standard samples not including the analyte of interest. See the abstract; Table 1, and the Experimental Section (a computer is clearly implied and necessary to use the ARTHUR software to perform the eigenvector analyses for PCA). However, if not implied, it would have been obvious to one with ordinary skill in the art at the time of the invention to use the analyte screening system with a sample whose signal profile is not yet none to the system because the system of Carey has defined a measurement space with vectors corresponding to broad groupings of polymers or ranges of interactive molecular forces. For example, "[t]he first varimax rotated eigenvector of Table III corresponds to the polybutadiene group ... Vector three contains the coating materials in the B cluster consisting of polyvinyl groups. Vector two represents the cellulose structures of group D .." and "these forces [interactions such as Lewis acidity, van der Waals interactions and polarity] can be thought of as being vectors in feature space ... since structure determines the type of chemical interaction for each coating, the observed groupings of similar structure within

an individual varimax rotated vector is expected." See the tops of the first and second columns on page 152. Moreover, Carey states,

The use of unsupervised learning methods of pattern recognition has provided a useful means of categorizing coating materials. The selection of coating materials for a sensor array is based on the eigenvectors obtained by PCA. Information content or variance is the only parameter necessary to determine the importance of a variable. The basis of selection can now be determined by cost, availability, or experimental considerations. The methods of varimax rotation and hierarchical clustering analysis also produce meaningful characterization of chemical interactions and have been shown to be mutually supportive. Both methods group together coating materials of similar structure and thus provide information to classify coating materials. *See the first full paragraph in the second column on page 152.*

Thus, Carey discloses an analyte screening system for general application.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffheins et al. US 5,654,497 ("Hoffheins") in view of Lewis US 5,571,401 B1 ("Lewis").

Hoffheins teaches all of the limitations of underlying claim 12. See the abstract; Figure 14; col. 03: 58 – col. 06:14; and claim 1. Although Hoffheins uses chemically-sensitive resistor sensors they are metal oxide sensors, such as Taguchi-type tin oxide sensors, that do not appear to have conductive and non-conductive regions as claimed. See col. 04:38-50.

Lewis discloses a sensor array comprising sensors having conductive and non-conductive regions as claimed. See the abstract. It would have been obvious to one with ordinary skill in the art at the time of the invention to use sensors with conductive

and non-conductive regions as taught by Lewis in the invention of Hoffeins because as taught by Lewis "... due to the lack of understanding of catalyst function, SnO₂ arrays do not allow deliberate chemical control of the response elements in the arrays nor Reproducibility of response from array to array." See col. 01:26-39.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffheins et al. US 5,654,497 ("Hoffheins") in view of Lewis US 5,571,401 B1 ("Lewis").

Hoffheins teaches all of the limitations of underlying claim 16. See the abstract; Figure 14; col. 03: 58 – col. 06:14; and claim 1. Although Hoffeins does not mention any of the particular physical properties listed in Applicant's claim 14, does disclose using the system to recognize whether an alcohol or a small alkane has been added to the sample. So, since the system of Hoffheins is intended for identifying organic liquids it would have been obvious to one with ordinary skill in the art at the time of the invention to also have the system recognize alcohol and alkane side groups.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 9-12 and 15-17 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hoffheins et al. US 5,654,497 ("Hoffheins"). See the abstract; Figure 14; col. 03: 58 – col. 06:14; and claim 1.

Claim Rejections - 35 USC § 112

14. Claims 9-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a sensor different differentially responsive sensors, such as an array of chemically sensitive resistors, does not reasonably provide enablement for a sensor array of different sensors, such as an array including . The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

15. Claims 9-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

a) Claims 11, 12, and 15 each recite the limitation "the different differentially responsive sensors [of claim 16]" in lines 1-2. There is insufficient antecedent basis for this limitation in these claims.

b) it is not clear whether the new limitation of "a sensor array comprising a plurality of different sensors" includes or excludes the previous limitation of "a sensor array comprising a plurality of differentially responsive sensors". That is, has the claim scope of claims 16 and 17 been broadened beyond differentially responsive sensors or adjusted to concern different sensors (e.g. a sensor array consisting of an optical sensor, a resonance mechanic frequency sensor, and an electrical sensor) instead of an array of the same type of sensor, but with different responses, such as a sensor array consisting of chemresistors with varying amounts of conductive and non-conductive material?

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alex Noguera
Primary Examiner
AU 1795
January 7, 2008